CLAIMS

What is claimed is:

1. A method of producing a sealing element for a downhole tool, comprising:

depositing a first layer of a first material comprising a lattice structure, onto a bed plate of a 3D printer; and

depositing a second material in intermittent spaces of the lattice structure; and

depositing additional layers sequentially, wherein each sequential layer is disposed on a previous layer, produce the sealing element.

2. The method of claim 1, wherein the sealing element has an annular body.

3. The method of claim 1, wherein the first material and the second material have hardnesses that vary from one another by 5 or more on the Shore A Hardness Scale.

4. The method of claim 1, further comprising halting the flow of the first material on at least a portion of the second layer and sequential layers to form a void, wherein the void is enclosed by the first layer and a final layer.

5. The method of claim 4, wherein the void is filled with air.

6. The method of claim 1, further comprising forming voids between some of the additional layers.

7. The method of claim 1, further comprising exposing the first material to electromagnetic radiation to promote polymerization.

8. The method of claim 1, further comprising exposing the first material to an ultraviolet source to initiate a phase change.

9. The method of claim 1, further comprising depositing additional layers of the first material or the second material sequentially, wherein each sequential layer is disposed on a previous layer.

10. The method of claim 9, further comprising forming a void between the additional layers, wherein the void is adjacent to a final layer.

11. The method of claim 9, further comprises forming a plurality of voids filled with air between some of the additional layers.

12. The method of claim 1, wherein the first and second layers include photopolymers.

13. The method of claim 1, further comprising cross-linking the first material with the second material.

14. The method of claim 1, further comprising forming an additional layer with the first material, the second material, and a third material.

15. The method of claim 1, further comprising exposing the first material to radiation.

16. The method of claim 15, further comprising promoting polymerization of the first material with the radiation.

17. The method of claim 9, wherein depositing the additional layers sequentially comprises depositing a thermoplastic, a ceramic, or a metal.

18. The method of claim 9, wherein depositing the additional layers sequentially comprises depositing at least a polymer.

19. The method of claim 1, wherein depositing the additional layers sequentially comprises depositing different materials.

20. The method of claim 1, further comprising forming at least one void in at least one layer.